

CLAIMS:

1. User interface apparatus for use with a machine which can receive a number of user instructions to reach
5 one of a plurality of possible machine states, wherein said user instructions can be input to said machine using at least natural language as a mode of input, the user interface apparatus comprising:

status means for obtaining a current state of said
10 machine;

generating means responsive to the obtained current state of said machine to generate information to inform a user of a natural language instruction which can be input to said machine to achieve the current state of said machine; and
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output means for outputting the generated information to the user.

2. User interface apparatus according to claim 1, including means for receiving a request from a user of said machine for said information, wherein said
20 generating means is adapted to be responsive to a received request to generate said information.

3. User interface apparatus according to claim 1, including means for receiving a request from a user, who has input a natural language instruction to arrive at the
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current state, of said machine for an appropriate natural language instruction to reach the current state, wherein said generating means is adapted to be responsive to a received request to generate said information as the requested instruction.

4. User interface apparatus according to claim 1, wherein said status means is adapted to maintain a data structure containing attributes defining the current state of the machine, each attribute having a number of possible values.

5. User interface apparatus according to claim 4, wherein each attribute has at least one natural language fragment associated therewith, and said generating means is adapted to generate said information by building up a natural language instruction from said natural language fragments for said attributes for the current state of said machine.

6. User interface apparatus according to claim 5, wherein said generating means is adapted to build said natural language instruction in accordance with natural language rules.

7. User interface apparatus according to claim 5, wherein said generating means is adapted to order said

natural language fragments in accordance with order rules.

5 8. User interface apparatus according to claim 5, wherein said generating means is adapted to replace elements in the natural language instruction with other elements in dependence upon at least one of previous user interactions, preferred synonyms, user preferences, and natural language input recognition problems.

10 9. User interface apparatus according to claim 5, wherein said generating means is adapted to add natural language elements to said natural language instruction as at least one of a natural language prefix and suffix.

15 10. User interface apparatus according to claim 1, wherein said generating means is adapted to generate said information as text.

20 11. User interface apparatus according to claim 10, wherein said output means is adapted to display said text.

12. User interface apparatus according to claim 10, wherein said output means includes speech synthesis means for synthesising speech from said text and audio output means for audibly outputting said speech.

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13. User interface apparatus according to claim 1, wherein said generating means is adapted to generate said information as speech data.

10 14. Processing apparatus comprising the user interface apparatus according to claim 1 and a machine which can receive a number of user instructions to reach one of a plurality of possible machine states, said machine including instructions input means to input said user instructions to said machine using at least natural language as a mode of input.

15 15. A user interface method for use with a machine which can receive a number of user instructions to reach one of a plurality of possible machine states, wherein said user instructions can be input to said machine using at least natural language as a mode of input, the method comprising:

20 obtaining a current state of said machine;
25 generating information to inform a user of natural language instructions which can be input to said machine to achieve the current state of said machine; and

outputting the generated information to the user.

16. A user interface method according to claim 15,
including receiving a request from a user of said machine
5 for said information, wherein information is generated in
response to said request.

17. A user interface method according to claim 15,
including receiving a request from a user, who has input
10 a natural language instruction to arrive at the current
state, of said machine for an appropriate natural
language instruction to reach the current state, wherein
said information is generated as the requested
instruction in response to said request.

18. A user interface method according to claim 15,
wherein the current state of said machine is obtained as
a data structure containing attributes defining the
current state of the machine, each attribute having a
20 number of possible values.

19. A user interface method according to claim 18,
wherein each attribute has at least one natural language
fragment associated therewith and said information is
25 generated by building up a natural language instruction
from said natural language fragments for said attributes
for the current state of said machine.

20. A user interface method according to claim 19, wherein said natural language instruction is built in accordance with natural language rules.

5 21. A user interface method according to claim 19, wherein said natural language fragments are ordered in said natural language instruction in accordance with order rules.

10 22. A user interface method according to claim 19, including replacing elements in the natural language instruction with other elements in dependence upon at least one of previous user interactions, preferred synonyms, user preferences, and natural language input recognition problems.

15 23. A user interface method according to claim 19, including adding natural language elements to said natural instruction as at least one of a natural language prefix and suffix.

20 24. A user interface method according to claim 15, wherein said information is generated as text.

25 25. A user interface method according to claim 24, wherein said text is displayed so as to be output to the user.

26. A user interface method according to claim 23, including speech data synthesis from said text, wherein said speech data is used to generate audible speech output to the use.

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27. A user interface method according to claim 15, wherein said information is generated as speech data.

28. Program code for controlling a processor to implement the method of claim 15.

29. A carrier medium carrying the program code according to claim 28.